



# BISON

Bison Oil Well Cementing Inc.  
1547 Gaylord Street  
Denver, CO 80206  
303-296-3010

## Invoice

Date	Invoice #
12/25/2014	55050

Bill To
Noble Energy Inc. Attn: Accounting 1625 Broadway Ste 2000 Denver, CO 80202

Location	Well Name & No.	Terms	Job Type		
Weld CO	Mahaldo State AA09-78HNC	Net 30	Surface Pipe		
Item	Description	Qty	U/M	Rate	Amount
Pump surface	PUMP Charge-surface pipe	1			
Discount 15%	Discount 15%				
MILEAGE	Mileage charge	360			
Discount 15%	Discount 15%				
Data Acquisition ...	Data Acquisition Charge	1			
Discount 15%	Discount 15%				
Service Charge	PSI Charge	1			
HOURS	Wait Time	1			
	Subtotal of Services				
BFN III Winter ...	BFN III Blend	335	Sack		
Discount 15%	Discount 15%				
Dye - 4880	Dye (Hot Pink 4880)	16	oz		
Discount 15%	Discount 15%				
KCL Mud Flush	(BHS 117)	6	qt		
Discount 15%	Discount 15%				
	Subtotal of Materials				

Please Remit Payment To:

Bison Oil Well Cementing, Inc.  
P.O. Box 29671  
Thornton, CO 80229

Subtotal

Sales Tax

Total

Balance Due



# Bison Oil Well Cementing Single Cement Surface Pipe


Date: 12/25/2014  
Invoice #: 55050  
API#:   
Foreman: Monte Bedeaux

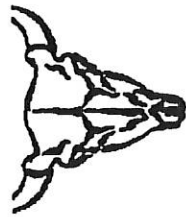
Customer: Noble Energy Inc.  
Well Name: Mahaldo State AA09-78HNC

County: Weld  
State: Colorado  
Sec: 4  
Twp: 6n  
Range: 63w

Consultant: Charles  
Rig Name & Number: H&P 322  
Distance To Location: 32.2  
Units On Location: 4028-3102 4022-3213  
Time Requested: 3:30pm  
Time Arrived On Location: 3:15  
Time Left Location: 8:30

WELL DATA		Cement Data	
Casing Size OD (in) :	9.625	Cement Name:	BFN III
Casing Weight (lb) :	36.00	Cement Density (lb/gal) :	14.2
Casing Depth (ft.) :	854	Cement Yield (cuft) :	1.48
Total Depth (ft) :	859	Gallons Per Sack:	7.48
Open Hole Diameter (in.) :	13.50	% Excess:	5%
Conductor Length (ft) :	124	Displacement Fluid lb/gal:	8.3
Conductor ID :	15.6	BBL to Pit:	
Shoe Joint Length (ft) :	43	Fluid Ahead (bbls):	60.0
Landing Joint (ft) :	30	H2O Wash Up (bbls):	20.0
Max Rate:	5	Spacer Ahead Makeup	
Max Pressure:	1000	10 fresh 10 dye 40 fresh	

Casing ID	8.921	Casing Grade	J-55 only used
Calculated Results		Displacement:	65.02 bbls
cuft of Shoe	18.66 cuft	(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
(Casing ID Squared) X (.005454) X (Shoe Joint ft)		Pressure of cement in annulus	
cuft of Conductor	101.93 cuft	Hydrostatic Pressure:	630.00 PSI
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)		Pressure of the fluids inside casing	
cuft of Casing	374.61 cuft	Displacement:	349.69 psi
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length )		Shoe Joint:	31.72 psi
Total Slurry Volume	495.21 cuft	Total	381.41 psi
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)		Differential Pressure:	248.59 psi
bbls of Slurry	88.20 bbls		
(Total Slurry Volume) X (.1781)		Collapse PSI:	2020.00 psi
Sacks Needed	335 sk	Burst PSI:	3520.00 psi
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)		Total Water Needed:	204.61 bbls
Mix Water	59.59 bbls		
(Sacks Needed) X (Gallons Per Sack) ÷ 42			
 Authorization To Proceed			
Customers hereby acknowledges and specifically agrees to the terms and condition on this work order, including, without limitation, the provisions on this work order.			



SINGLE CEMENT SURFACE PIPE

## Single Cement Surface Pipe

INVOICED BY

LOCATION

FOREMAN

Date

JULY

Weld

Monte Bedeaux

12/25/2014

Customer

Well Name

Noble Energy Inc.

Mahaldo State AA09-78HNC

Treatment Report Page 2

## DESCRIPTION OF JOB EVENTS

	5:15 4:30 6:07	Displace 1		Displace 2		Displace 3		Displace 4		Displace 5	
		BBS	Time	BBS	Time	BBS	Time	BBS	Time	BBS	Time
Safety Meeting		0	6:37	0		0		0		0	
MIRU		10	6:40	80		10		10		10	
CIRCULATE		20	6:42	80		20		20		20	
Drop Plug		30	6:44	190		30		30		30	
6:37		40	6:46	240		40		40		40	
		50	6:48	280		50		50		50	
M & P		60	7:02	280		60		60		60	
Time		70	7:04	560		70		70		70	
6:10-6:35	Sacks	80				80		80		80	
		90				90		90		90	
		100				100		100		100	
		110				110		110		110	
		120				120		120		120	
% Excess	5%	130				130		130		130	
Mixed bbls	59.59	140				140		140		140	
Total Sacks	335	150				150		150		150	
bbl Returns	14										
Water Temp	46										

Notes:

safty meeting, miru, pressure test per company man, circulate 60 bbls ahead with dye in 2nd 10, mix and pump 335 sks at 5%

excess, drop plug and displace 65.02 bbls h2o, bump plug at 7:02 pm at 560 psi, wash up rig down

X

X

Title

Date

X 12/25/14

Work Performed